



ATTACHMENT A

Remarks

By this Amendment, independent claim 1 has been amended for better clarity but not substantively. Other dependent claims have also been amended consistent with the changes to independent claim 1. It is submitted that the present application is in condition for allowance for the following reasons.

Initially, it will be noted that claim 19 is indicated as no longer being withdrawn. Claim 19 recites the overpressure valve embodied by the pressure openable sealing element 38 shown in figures 1, 4 and 7. Thus, this claimed element is part of the elected Species A, and should have been identified as such by applicant in response to the restriction requirement. This previous error is thus corrected now.

It will also be noted that the alternative recitation of dependent claim 2 has been canceled therefrom and is now the subject matter of new claim 24 dependent on claim 2. Thus, claim 24 is likewise a claim which reads on the elected embodiment.

In the *Claim Rejections - 35 USC § 112* section of the outstanding Office Action, independent claim 1 and dependent claims 2-4, 8-10, 16 and 23 (the elected claims) were all rejected as being indefinite. In particular, the examiner noted that applicant had not positively recited the element "can" as part of the claimed invention, so that reference thereto lacked antecedent basis. However, it will be appreciated that the claimed invention is a "pressure regulator", which is attached in use to a spray valve to form a unit which in turn is ultimately mounted to a spray can. Thus, neither the spray valve or the can are elements of the claimed invention of claim 1. For clarity, reference is made to these non-invention elements in order to give context to the claimed

regulator elements in a manner which greatly makes the claimed elements more understandable to those of ordinary skill. In order to emphasize that the non-invention elements are not part of the claimed invention, reference thereto is made only inferentially, and now with a phrase such as "in use" to better show these elements are not part of the claimed invention. While references to the spray valve and to the can could be eliminated if desired, it is believed that removal of references to such elements would make the claims less readily understandable, and hence such removal is undesired for that reason. Therefore, if the present claim amendments are not satisfactory to evidence this distinction, it is requested that the examiner suggest some alternative (the use of "adapted to" for example, is preferred by some examiners) to accomplish this same result either in a telephone conference or the next action.

In the *Claim Rejections - 35 USC § 102 and § 103* sections of the outstanding Office Action, independent claim 1 and dependent claims 2-5¹, 8-10, 16 and 23 (the elected claims) were all rejected as being anticipated by or obvious over the Schneider PCT/US reference taken singly, or for dependent claim 9, in combination with the Turner patent. However, for the following reasons, it is submitted that these claims (and the remaining claims) are all allowable over these references.

The Schneider PCT/US reference, the inventor's own prior patent, is discussed in the background section of the present application. A distinct advantage of the present invention over this prior art (and others) is stated therein, so for convenience that discussion is repeated now.

¹ The subject matters of claims 3-5 were discussed under the anticipation rejection in relation to the teachings of the Schneider PCT/US reference, though claims 3-5 were not listed with the claims being anticipated; while dependent claim 2, from which these claims depended, was discussed and rejected only as being obvious over the Schneider PCT/US reference.

All the pressure reducing valves described in these references have the disadvantage that the initially very high internal pressure of the can acts on an axial face of the piston element, and even in those cases in which only the comparatively small shaft end of the piston is acted upon by the high pressure, still there is a not inconsiderable axial force on the piston element. If the internal pressure of the can were to remain constant, this disturbing force could easily be corrected. However, since with increasing evacuation of the contents the internal pressure of the can decreases continuously, the magnitude of the disturbing force also varies, so that the disturbance variable can no longer be readily compensated for. In the final analysis, the effect is that the regulated pressure of the pressure regulating valve varies as a function of the still-remaining fill pressure in the aerosol spray can, which is unwanted since as a result the spray valve can no longer function optimally. (Emphasis added, See page 1, line 31 to page 2, line 15.)

This disadvantage of the prior art is overcome with the present invention, and in particular by the last element which recites:

a sealing means which is used for sealing off said free end of said piston at all times a) from the pressure level prevailing in the can interior AND b) from the regulated pressure in said pressure regulation chamber, so that in use the pressure acting on said free end of the piston is at all times independent of the pressure level prevailing in the can. (Emphasis added).

This sealing means is embodied in figure 1 by seal 86 which effects a moving seal between the wall of piston 52 and the (lower) free end of piston 52 located in the closed end portion 60 of the housing. This sealing means is closed in a "pressuretight fashion" as stated at page 12, line 4, and thus it is clear from that and the overall description of the invention that this seal functions "at all times" as now recited.

It will also be appreciated that this sealing means is different from the sealing point 68 or 69 which is also recited in claim 1. When this sealing point is closed, as depicted in figure 1, it separates the pressure in the pressure regulation chamber 84 (as transferred through bore 82, opening 80, and groove 78) from that (higher) pressure in

the can interior (as transferred through bore 102, around the outside of wall portion 60, and recess 72).

The Schneider PCT/US reference does not accomplish both of the sealing off functions accomplished by the claimed sealing point and sealing means, and in particular it has no equivalent sealing means. Rather, the Schneider PCT/US reference has only a sealing point 32 as best shown in figure 2 (figure 1 showing the pressure regulating valve under ambient pressure is all directions, and hence as the regulating valve is manufactured or prior to pressurizing of a can interior so there is no separation between the pressure regulating chamber 26 and the can interior). In particular, when the sealing point 32 is closed (sealing off can interior pressure as depicted in figure 2), sealing point 32 separates the pressure in the pressure regulation chamber 26 (as transferred through grooves 38 adjacent the piston rod 30, slits 56 in the end of piston rod 30, bore 58 in the center of piston 30, and up to the spray valve 14) from that (higher) pressure in the can interior (as transferred through bore 52, slits 54, and vertical grooves 53). In this condition, the free end of piston 30 (or of piston rod 22) is subject to the pressure in the pressure regulating chamber 26 (through grooves 38 and slits 56).

When the sealing point 32 is opened during use (and thus like the position depicted in figure 1), the free end of piston 30 (or piston rod 22) is then still subject to the pressure in the can interior, together with the pressure of regulating chamber 26. In particular, the interior can pressure is transferred up through bore 52, through slits 54, up through vertical grooves 53, and finally into the interior of piston rod 30 through slits

56; while the pressure in regulating chamber 26 is transferred down through grooves 38 and then to slits 54 and to past sealing point 32.

Therefore, contrary to the explicit recitation in claim 1 that the sealing means seals off the free end of the piston at all times from the pressure in the can interior or in the regulating chamber, the Schneider PCT/US reference instead has the free end of the piston at times subject to the pressure in the can interior. As a result, the Schneider PCT/US reference suffers at all times from the influence of the internal pressure acting upon the free end of the piston, which as noted above is a severe drawback because naturally the forces that are necessary to open the sealing point will differ depending on the pressure level prevailing in the can. This means that at the beginning with a full can and a high internal pressure it will need a substantial higher force to open the sealing point as opposed to later on when the can is nearly empty. This makes it nearly impossible to provide the desired pressure level at the spraying valve independent from the internal pressure of the can - a disadvantage which is thus overcome with the structure of the claimed invention.

Therefore, for all of the foregoing reasons, it is submitted that amended independent claim 1 is neither disclosed nor made obvious by the Schneider PCT/US reference. For these same reasons, it is submitted that dependent claims 2-5, 8-10, 16 and 23 are likewise all allowable; and that withdrawn dependent claims 6-7, 11-15 and 17-22 are also allowable based on their dependence from an allowable generic claim.

In the rejection of dependent claim 2 as being obvious over the Schneider PCT/US reference, the examiner has stated that it would have been obvious to providing the sealing point in the middle region of the piston

to provide for a manner in which the spring force and pressure regulating chamber are positioned closer to each other for better controlled spring force actuation by reducing the travel distance of a pressurized fluid (see top of page 5).

This statement seems a mere hindsight reconstruction, without any suggestion or motivation found in the prior art. Further, it cannot be understood since it ignores the other elements of the regulating valve and fails to convey exactly what change or reconstruction the examiner has in mind. For example, where is the examiner supposing the sealing point is actually to be located? The Schneider PCT/US reference already has a seal 42 provided in the middle region of the piston. Is the examiner suggesting that this seal be replaced with the sealing point 32 - and if so how is the can interior pressure be delivered thereto and what will take the place of seal 42? And how does such a location bring the spring force and pressure regulating chamber closer together, when they are already directly opposite to one another? And how would that provide for "better controlled spring force actuation by reducing the travel distance of a pressurized fluid"? What fluid is the examiner referring to? And it seems that whatever fluid pressure the examiner is talking about, the travel distance of the other pressurized fluid (the two possible fluid pressures are that of the pressurized regulation chamber or that of the can interior) would be longer, negating whatever effect the examiner supposes might exist. Therefore, this proposed reconstruction lacks suggestion and motivation, as well as any details of how one of ordinary skill would make any such reconstruction.

The examiner also states that claim 2 should be rejected because "rearranging parts of an invention involves only routine skill". However, as noted above, the present invention provides a distinct advantage over the prior art, not suggested by the prior art.

In addition, the Schneider PCT/US reference does not disclose any such sealing means as noted above. Therefore, this is not just a rearrangement of parts, but a structure with a new part which yields a new and beneficial operation. As such, the claimed arrangement of elements is not disclosed or obvious.

Therefore, for the foregoing reasons, it is submitted that dependent claim 2 is additionally allowable for these reasons.

In rejecting dependent claim 4 for anticipation (or obviousness), the examiner has stated that seals 32 and 42 of the Schneider PCT/US reference provide seals between the piston shaft and the cylindrical housing. However, what is claimed is that a seal is provided on both sides of the sealing point. In the Schneider PCT/US reference, only seal 42 is provided on one side of sealing point 32 (which does not act as a separate seal as claimed in any event). Rather, there is no seal as claimed on the other side of sealing point 32 in the Schneider PCT/US reference and none is possible. Therefore, for this additional reason, dependent claim 4 is neither disclosed nor made obvious by the Schneider PCT/US reference.

In rejecting dependent claim 16 for anticipation, the examiner has stated that housing part 16 receiving the free end of the piston is "cuplike". However, the common definition of "cuplike" is "resembling the shape of a cup" and forming a container. The lower part of housing 16 would be considered "funnel-like", since it has a bottom outlet/opening; and in any event is not "cuplike" as forming a container since it can not contain anything due to the outlet. In addition, it would not function for its intended purpose if it were "cuplike". Therefore, for this additional reason, it is submitted that dependent claim 16 is allowable over the Schneider PCT/US reference.

As noted above, dependent claim 9 was rejected as being obvious over the Schneider PCT/US reference in view of the Turner patent. However, it is submitted that claim 9 is allowable at least for the same reasons as claim 1 from which it ultimately depends.

For all of the foregoing reasons, it is submitted that the present application is in condition for allowance and such action is solicited.